

Rt Hon Michael Gove MP
Secretary of State for Education
Department for Education
Sanctuary Buildings
London SW1P 3BT

Response number 4986 - 14 April 2011

Dear Secretary of State,

Thank you for the opportunity to respond to the Review of the National Curriculum Call for Evidence.

The Association for Learning Technology (ALT) is an educational charity and learned society with over 700 individual and over 200 organisational members including most UK universities, many FE colleges, and a wide range of businesses and agencies with an interest in ICT in learning. Our purpose is to ensure that the use of learning technology is effective and efficient, informed by research and practice, and grounded in an understanding of the underlying technologies, their capabilities and the situations into which they are placed.

Our response has been written with input from and the support of the Technology Enhanced Learning Programme (TEL), which is the UK's ESRC/EPSRC funded Teaching and Learning Research Programme¹ and which has set out over the last three years systematically to design, implement and evaluate technology-enhanced learning in a wide range of areas.

The focus of this short response is on ICT in **the curriculum** and in **the learning process**, both of which we believe are crucial for the future success of the country's education system and of individuals within it.

The timing of the Review is good for the introduction of pervasive and sound use of ICT within the curriculum, and, provided teachers are appropriately trained and developed, this will lead to better education across the board and to a workforce better suited for the knowledge-based world ahead.

We would be happy to discuss the points we make with colleagues in your Department and/or with the expert panel or the advisory committee, with whom we'd be happy for this response to be shared directly.

Yours sincerely,



Seb Schmoller
Chief Executive

¹ <http://www.webcitation.org/5xuNpdVbf>

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1. The Review of the National Curriculum is timely. Our intention in this submission is to argue that the Review's prioritisation of, for example, rigour, subject knowledge, and capacity to learn, can be achieved more productively if - and only if - there is judicious use of information and communication technology (ICT), based on clear evidence of what does, and what does not, work.
2. Whatever simplification or changes are made to the National Curriculum (NC), the new NC must support the learning of analytical, systems, and abstract thinking. The whole curriculum, partly but by no means exclusively through the Mathematics curriculum², should support analytical, systems, and abstract thinking without there being a need for a *subject* called ICT within the NC. In fact, having a subject *called* ICT runs the risk of ghettoising the *use* of ICT - we don't have subjects called "books" - we just use them. The pervasive use of ICT is a prerequisite of the future knowledge society. Thus ensuring that all aspects of the curriculum help to reinforce the acquisition of appropriate understanding and skills is necessary to be fair to the future of young people.
3. While we do not think that ICT should be a separate subject, we believe that the ability to identify and deploy appropriate ICT tools, assets and services to address specific tasks in all subjects in the curricula is essential. This fluent use of ICT should be mandated into the NC in a cross-cutting way, and *all* teachers need themselves to be trained and then developed to be digitally fluent and "web savvy" so that they properly appreciate the developing role played by ICT in their own subject, and so that they can deploy ICT effectively in their own subject.

To be effective in the changing environment requires that the designers of the NC understand the implications of the technologies that are driving changes in society, from which education is not immune.

One way to think about these changes is in terms of customisation, interaction, and control³:

- Customisation, which refers to providing people the knowledge they want when they want it and to supporting and guiding them as they learn.
- Interaction, which refers to the ability of computers to give learners immediate feedback and to engage learners through simulation in accomplishing realistic tasks.
- Control, which refers to putting learners in charge of their learning, so they feel ownership and can direct their learning where their interests take them.

4. Research on employers' needs shows conclusively that pupils need to leave school being fluent and confident in the use of ICT tools, assets and services. However the specific tools, assets and services are in a state of constant change and so cannot be specified in a slow-changing National Curriculum. In practice, much learning in this area goes on in everyday life. How to harness informal learning to support formal learning remains a key research area where understanding is slowly being reached.
5. There are many bodies and individuals active in researching the use of technology in teaching. For example, the TEL programme's *Personal Inquiry* project has demonstrated unequivocally that cheap, easily available handheld devices can bring science alive to students, helping them solve realistic and meaningful problems. The *MiGen* project has shown how carefully designed software that is adaptive and responsive to students' actions, can bring mathematics lessons alive, and help students see the point of algebraic symbols.

In these and other research studies, the message is clear. Technology by itself improves nothing; technology that is carefully designed alongside its potential users, with input from teachers, educators, technology specialists and stakeholders, *can and does* make a difference. It can make teaching more productive, by supporting teachers and helping them with tools that are responsive both to them and also to their students. It can make learning more adaptive, by building in formative assessment that challenges students to make progress more quickly. Technology can make learning more flexible, so that study no longer has to have an exclusive focus on deskwork or even be school-based; and it can make learning and teaching more inclusive, by building on technology that supports students with special needs, and personalising - stretching the gifted and introducing ideas that just a couple of decades ago would have been unthinkable difficult for youngsters to appreciate.

² Grammar is another way into understanding systematic logical thinking in any environment, including in mathematics, computer science and law, and in disciplines or professions characterised by the presence of clearly defined rules.

³ This approach is propounded by Collins and Halverson in their book *Rethinking Education in the Age of Technology: The Digital Revolution and Schooling in America*, and is similar to that advanced by Keri Facer in *Learning Futures: Education, technology and social change*.

The work of Sugata Mitra in the “hole in the wall” experiments shows how pupils can be challenged by technology to understand and solve problems that were previously considered well beyond them, sometimes in languages that they did not know and often working in groups building key cooperative skills.

6. ICT itself has to be subject to proper regimes of research, design and testing. It is not a panacea, and badly-designed software can be unproductive or even destructive. Software and hardware that are not designed for educational purposes often fail to fit schools and teachers, and can remain unexploited.

Our knowledge suggests that there is a place for ICT-based assessment (formative and summative) at all levels, and possibly for games-based learning. This also helps to address issues of reliability, fairness to all pupils, and of quality assurance. Good technology for instance allows assessment to be administered more fairly to those with certain disabilities.

Games-based learning helps to engage more young people in activities (this is true at all levels). It may also help build and reinforce a competitive ethos, whilst at the same time teaching the need for the kind of teamwork that can be key to success here and later in life.

It is thus vitally important that everyone is exposed to good use of digital technologies and resources through their school environment. While there are issues of access and equity that need to be addressed, not addressing them by ignoring technology at school exacerbates the digital divide rather than solves it.

7. ICT will be present in equipment in many subjects from Physical Education to Science. It is important in key NC areas. Its uses in Mathematics and Science are clear and wide ranging.

In the case of English and other subjects it is necessary to understand and judge the provenance of information (it is not enough to have found it on the Web). In addition we all increasingly use ICT-based spelling and grammar checkers continuously to improve our use of language, and this process as well as that of judging provenance will, in the near future, be facilitated by 'semantic' web tools of various kinds.

8. Many of the issues relating to ICT in the curriculum have been already considered outside of an English context, and the National Curriculum Review should be careful not to take too narrow point of view. In particular it is appropriate to take full account of work already done elsewhere, including in Scotland, and to build upon it.

Association for Learning Technology (ALT)

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